

Research Article: History of Anatomy and Embryology

Scotland's "wooden operator" William Smellie (1697-1763) and his counterpart in France André Levret (1703-1780): two great obstetricians and anatomists

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Summary

During the eighteenth century two great physicians, William Smellie and André Levret, instated maternity as a medical procedure. Although they had to face the negative criticism from women midwives of their time, nonetheless, through their work, they were recognized by the medical community as prominent obstetricians. With the expertise they gained they improved the forceps, while they thoroughly studied the anatomy of the pelvis. They passed their skills to their students who became the successors of their toil. Starting from two different countries and schools they both managed to shine within their science and leave behind a rich path.

Key words

William Smellie; André Levret; forceps; man-midwifery; pelvis; history of medicine.

Introduction

At the beginning of the eighteenth century, in France, any woman recommended by a few matrons and holding a Bishop License could perform midwifery. She only had to pay a small fee and swear an oath. Bishop License was not a qualification of individual midwives' abilities, as their reputation depended on their affiliations. Thus, there was a lot of public uproar demanding midwives for more extended knowledge who could meet the increasing requirements of their profession (Graham, 1960).

In Ancient Greece, midwives were required *"to have excellent memory, be hard workers, perceptive and moral, and, moreover, to be healthy and fit with long fingers and trimmed finger nails"* (Temkin, 1991) and they also ought *"to have practical, as well as theoretical knowledge, be experienced in all parts of the procedure, be able to determine the outcome of the procedure, be familiar with medicine, have soft hands while helping with labour and be moderate"* (Oeconomopoulou, 2007).

In other words, ancient Greek midwives were expected to have the qualifications of an obstetrician-gynecologist.

However, in the long run, midwifery grew basically into a practical profession. The midwives themselves pushed for reform and for introducing legislation and education regarding their profession.

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In times when in England midwifery was only practiced by women, William Smellie (1697-1763) started an attempt to set an example of educated and qualified obstetrician. This movement towards men-midwives did not go unnoticed and raised a lot of criticism. André Levret (1703-1780) followed Smellie's path in France.

William Smellie: the first man-midwife

William Smellie was born in 1697 in Lanark, Scotland. He began his education in the local Grammar School, in addition to which he studied medicine in Glasgow. In 1720 he returned to Lanark to start his career as a physician. He soon became the local apothecary and got married to Euphania Borland, who always supported his work and assisted in surgery while staying at home, which was at the same time the clinic, whenever he made house calls (Graham, 1960).

Smellie was carrying in his pockets only three bottles, containing spirits of hartshorn, tincture of castor and liquid laudanum, mixtures of which provided him with whatever drug he wanted. Although he was big, a fact that did not aid him practicing midwifery, in 1735 he decided to add it to his daily duties as general practitioner. After reading an article by Butter concerning obstetric forceps he began using them, and two years later he moved to London, disappointed by the local midwives who didn't invite him to labors and seeking out opportunities to grow as an obstetrician (Hibbard, 2000).

In London, he successfully followed Dussee's methods concerning forceps, while, looking for better equipment, he bought copies of Chapman's and Gifford's books. Chapman, at that time, was teaching in Red Lion Square, and was perhaps an extra incentive for Smellie's moving to London, even though it is questionable whether he attended any of his lectures (Graham, 1960).

In 1738 Smellie traveled to Paris, to Gregoire's teaching facility. Gregoire used forceps like Chapman's, but in different forms, like "tire-tête" and "mains de fer". Smellie soon got discouraged when he heard Gregoire advising his students to randomly apply the forceps and pull as hard as they could. He returned to London, where his fame started to grow rapidly and was recognized enough so that some students turned to him for attending lessons (Dunn, 1995).

Smellie stayed at Gerard Street, off Leicester Square, and taught his 900 students, in 280 courses, over 1150 labors. Students paid a small fee and when they were considered prepared, they helped him deliver children. William Hunter (1718-1783) was his most successful student (Roberts et al., 2010). Meanwhile, he emerged as an eminent anatomist and his book, *Anatomical Tables with Explanations and an Abridgement of the Practice of Midwifery*, gained enough attention (Hanson, 2004).

However, he never got in good terms with women midwives, with Elizabeth Nihell, author of *Treatise on the Art of Midwifery*, characterizing, in response to Smellie's *Treatise on the Theory and Practice of Midwifery*, the activities of all men-midwives as gross and indelicate, arguing that many of them turned to midwifery because they were failed physicians and considering with horror the prospect of a man-midwife touching a woman (Hanson, 2004).

Smellie died on March 5, 1763, suffering from asthma, and was buried in Lanark, four years after his retirement, leaving a rich heritage of twenty years of active working actively as an obstetrician and teacher of midwifery (Sinclair, 1996).

André Levret: a young competitor from Paris

André Levret was born in Paris in 1703, where he later finished his studies. At the beginning of his career he was lucky enough to find a rich patron, named Samuel Bernard, who offered him whatever he needed in order to be totally committed to medicine and midwifery. This social promotion he enjoyed allowed him to move freely around the high class French aristocracy (Mantalenakis, 2004).

His reputation kept growing and numerous students from all around Europe started approaching him (Huard, 1962). Dauphiness Maria Josepha of Saxony, mother of Louis XVI (1754-1793), was one of his famous patients. He occasionally proved out his independent spirit, notably arguing to a lady from the court, who suggested that delivering Dauphiness child would build up his reputation, that he was there because his reputation was already made (Thoms, 1935).

Levret died on January 22, 1780, but his name remained prominent in the history of surgery, gynecology and midwifery (Rihner, 1981).

Works and achievements by Smellie and Levret: two equally great scientists

Both Smellie and Levret published a series of great monographs.

Smellie published his first book in 1742, entitled "*A course of Lectures upon Midwifery*", republished in 1748 and 1753. His most important books were "*A treatise on the Theory and Practice of Midwifery*", with two editions in 1752, and the "*Set of Anatomical Tables*". The latter contained 39 anatomical drawings by Rymsdyk and Smellie depicting, among others, abnormal presentations with the forceps applied in them. These anatomical obstetrical plates were by far superior, in accuracy and presentation, than any other relevant sketch which had appeared before. The value of his work was such that the publication was continued anonymously after his death (Hanson, 2004).

Levret, on the other hand, published a series of works like "*Observations sur les causes et les accidents de accouchements laborieux*" in 1747, "*Suites des observations sur les causes accidents de plusieurs accouchements laborieux*" in 1751, "*Essai sur l'abus des règles*" in 1766. His work "*Accouchements laborieux*" described and rejected all the previous attempts to improve Palfyne's "mains de fer". Later on in his career, he used Dusée's forceps, which he improved greatly during his work on labour, altering the shape of the handles and devising a much better lock, and, furthermore, adding the fenestrated blades which the Chamberlains had used. Levret's long forceps, which he introduced in 1747, were a powerful instrument with which great force could be applied both in compressing the child's head and in traction (Dumont, 1981).

His book "*L'Art des accouchements démontré par des principes de physique et de mécanique*" earned him the title of the founder of rational obstetrics (Levret, 1753).

Smellie, after abandoning the Dusée type, had tried a pair of the Chamberlain pattern as described by Chapman. After finding both of them unsatisfactory, he devised a long and a short pair of forceps, before finally constructing a very short pair of forceps made of boxwood. The idea was that the blades would not feel cold to the patient, there would be no audible click when they were fitted together and, whenever possible, the forceps could be applied without the patient realizing it. This fact led William Douglas call Smellie "*wooden operator*". When he gave up the wooden for-

ceps and started using ones out of steel, he covered the steel with leather, eventually adding the new type of English lock. Over the next few years he perfected this lock, which is still in use today, and earned the approval of Levret (Campbell, 2004).

Those who intended to practice midwifery ought first of all to make themselves masters of anatomy, and acquire a competent knowledge in surgery and physics. Levret was the first to introduce mathematics in anatomy, as well as the principles of physics and mechanics (Mantalenakis, 2004). He emphasized that the ease or difficulty of labor depended upon the concordance between the diameters of the head of the fetus and the pelvis. Unfortunately for him, he was much less successful than Smellie in his attempt to advance pelvic mensuration, because he let theory outstrip practice while Smellie remained strictly practical in his approach. The latter was the first to measure the diagonal conjugate and corrected the Levret's views by proving that the greatest transverse diameter was at the brim of the pelvis. Smellie used to put his hand up into the uterus, outside the membranes, enabling quick movement of the foetus, while Levret preferred to insert his hand inside the bag of membranes out of fear of separating the placenta from the wall of the uterus (Graham, 1960). This manoeuvre had been used by François Mauriceau (1637-1709) and one of his assistants, who exerted traction on the child's feet. Nowadays it is known as the Mauriceau-Levret, Levret-Smellie or Mauriceau-Smellie manoeuvre (Doležal et al., 2007). Levret correctly distinguished, for the first time, three pelvic planes, the inlet above, the mid-pelvis and the outlet below (Mantalenakis, 2004).

Smellie had always been a minimally invasive practitioner, never approving extended forceps operation. He advised his students to carry the two blades in the huge side-pockets of their coats, in order to be drawn out secretly. His educational contribution included practical demonstrations using patients, lectures (Graham, 1960), and the usage of a dummy-machine, which might have been a real bony pelvis covered with leather, to demonstrate his methods to his apprentices (Campbell, 2004). In the first chapter of his *"Treatise on the Theory and Practice of Midwifery"*, entitled *"Mechanism of Parturition"*, he gave a clear and coherent description of the movements of the head in relation to the pelvis during delivery, for the first time in the history of midwifery (Campbell, 2004). He was the first to publish an illustration of a female pelvis deformed by rickets. William Smellie set a way of practice combined with personal teaching which was to be followed in London for almost a century after his death. He was the foremost man-midwife in Great Britain and taught the next generation of obstetricians, while practicing predominantly among the poor and middle classes (Doležal et al., 2007).

André Levret, on the other hand, was held in the same esteem in Paris, but known mostly among aristocrats. His forceps were renowned across Europe, and notably in Malta; some belongings of Michel Angelo Grima's (1771-1797), Professor of Anatomy and Surgery, which were found after his death, included among others a pair of Levret's obstetric forceps (Sanova-Ventura, 2009).

Conclusion

These two great scientists left their mark in midwifery, gynecology and anatomy. Even though they came from two different schools, Smellie from the Anglo-Saxon

and Levret from the French one, not only did they approve each other's work, but also they equally aided to the advancement of science.

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